## Amendments to the Claims

Claim 1 **(Currently Amended)** A substrate polishing apparatus comprising:

a polishing table having a polishing surface;

a substrate holder for holding and pressing a substrate against said polishing surface of said polishing table;

an eddy current sensor ~~a film thickness measuring device~~ for measuring a thickness of a film on the ~~substrate~~ substrate, said eddy current sensor having a sensor coil to be arranged near the substrate and an AC signal source for supplying an alternative voltage to said sensor coil; and

a controller for controlling a polishing process for the substrate according to a predetermined polishing recipe,

wherein said substrate holder has a plurality of pressure adjustable chambers, and pressures in said respective chambers are adjusted based on the film thickness measured by said ~~film thickness measuring device~~ eddy current sensor, and

wherein said controller is configured to switch ~~between the polishing recipe and another polishing recipe~~ an oscillation frequency of said AC signal source from a first value to a second value based on ~~the film thickness measured~~ a type of film determined from measuring results of said eddy current sensor.

Claim 2 **(Currently Amended)** A substrate polishing apparatus according to claim 1, wherein said ~~film thickness measuring device~~ eddy current sensor measures film thicknesses of a plurality of zones of the substrate corresponding to said respective chambers, and the pressures in said respective chambers are adjusted based on the film thicknesses of the respective zones measured by said ~~film thickness measuring device~~ eddy current sensor.

Claim 3 **(Currently Amended)** A substrate polishing apparatus according to claim 2, further comprising:

a storage device for storing polishing conditions each for the respective zones of the substrate;

a calculating device for calculating polishing rates at the respective zones of the substrate based on the film thicknesses of the respective zones measured by said ~~film thickness measuring device~~ eddy current sensor; and

a correcting device for correcting the polishing conditions including the pressures in said chambers based on the calculated polishing rates.

Claim 4 **(Currently Amended)** A substrate polishing apparatus according to claim 1, wherein said ~~film thickness measuring device~~ eddy current sensor measures the thickness of the film on the substrate after the substrate is polished.

Claim 5 **(Currently Amended)** A substrate polishing apparatus according to claim 1, wherein said ~~film thickness measuring device~~ eddy current sensor measures the thickness of the film on the substrate while the substrate is being polished.

Claim 6 **(Currently Amended)** A substrate polishing apparatus according to claim 1, wherein:

said ~~film thickness measuring device has a detection sensor that~~ sensor coil is moved across the substrate so as to obtain time-series data of the thickness of the film on the substrate; and

said ~~film thickness measuring device~~ eddy current sensor assigns the time-series data to a plurality of zones of the substrate so as to obtain film thicknesses of the respective zones.

Claim 7 **(Canceled)**

Claim 8 **(Currently Amended)** A method of polishing a substrate according to a predetermined polishing recipe, the substrate having a film thereon, said method comprising:

holding the substrate by a substrate holder which has a plurality of pressure adjustable chambers;

pressing the substrate against a polishing surface of a polishing table;

providing relative movement between the substrate and the polishing surface;

measuring film thicknesses of a plurality of zones of the substrate by ~~a film thickness measuring device~~ an eddy current sensor having a sensor coil arranged near the substrate and an

AC signal source for supplying an alternating voltage to the sensor coil, the zones corresponding to the respective chambers;

adjusting pressures in the respective chambers based on the measured film thicknesses of the respective zones; and

switching ~~the polishing recipe to another polishing recipe~~ an oscillation frequency of the AC signal source from a first value to a second value based on ~~the film thickness measured~~ a type of film determined from measuring results of the eddy current sensor.

Claims 9-11 **(Canceled)**

Claim 12 **(Currently Amended)** A method according to claim 8, further comprising detecting a timing to stop polishing the substrate based on the film thicknesses measured by the ~~film thickness measuring device~~ eddy current sensor.

Claim 13 **(Currently Amended)** A method according to claim 8, wherein:

~~the film thickness measuring device is an eddy current sensor;~~

the ~~eddy current sensor has a~~ sensor coil ~~that~~ is moved across the substrate so as to obtain time-series data of a thickness of the film on the substrate; and

the time-series data are assigned to the zones of the substrate so as to obtain the film thicknesses of the respective zones.

Claim 14 **(Previously Presented)** A method according to claim 8, wherein said measuring comprises repeatedly measuring the film thicknesses of the respective zones of the substrate, and said adjusting comprises repeatedly adjusting the pressures in the chambers so that the film thicknesses of the respective zones converge within a predetermined range.

Claims 15-18 **(Canceled)**